

STATEMENT OF AMENDMENT UNDER ARTICLE 19(1) OF THE TREATY

Claim 1 is amended to include the limitation "wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque". This amendment to the claim is based on the descriptions of Paragraphs [0046] on Page 6 and [0049] on Page 11 of the specification on file and FIG. 2.

Claim 2 is amended to include the limitation "wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque". This amendment to the claim is based on the descriptions of Paragraphs [0046] on Page 10 and [0049] on Page 11 of the specification on file and FIG. 2.

Claim 3 is amended to include the limitation "a power generator is disposed on the free end side of said inner race side stationary column". This amendment to the claim is based on the descriptions of Paragraphs [0046] on Page 10 and [0049] on Page 11 of the specification on file and FIG. 2.

Claim 3 is amended from "a torque transmission shaft of a cylindrical column or hollow cylindrical shape having a function of an output shaft terminal of the wind turbine, which is connected to said outer race side rotor and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end" to "a torque transmission shaft of a cylindrical column or hollow cylindrical shape having a function of an output shaft terminal of the wind turbine and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, and said torque transmission shaft is connected to the output end." This amendment to the claim is based on the descriptions of Paragraphs [0067] on Page 13 of the specification on file and FIG. 4.

Claim 7 is amended from "the top of said torque transmission shaft is connected to said rotor of the wind turbine through a flexible joint" to "the top of said torque transmission shaft is connected to said output end of said rotor of the wind turbine through a flexible joint." This amendment to the claim is based on the descriptions of Paragraphs [0067] on Page 13 of the specification on file and FIGS. 4 and 5.

Claim 9 is amended from "a torque transmission shaft of a cylindrical column or hollow cylindrical shape having a function of an output shaft terminal of the wind turbine, which is connected to said outer race side rotor and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end" to "a torque transmission shaft of a cylindrical column or hollow cylindrical shape having a function of an

output shaft terminal of the wind turbine and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, and said torque transmission shaft is connected to the output end." This amendment to the claim is based on the descriptions of Paragraphs [0067] on Page 13 of the specification on file and FIG 4.

Claims 4, 6, 8 and 10 remain unchanged.

The cited References 1 and 2 disclose wind turbines comprising an outer race side rotor for producing a rotational torque with wind, and an inner race side stationary column having one free end externally unconstrained and the other stationary end. However, the present invention is featured in that "the position of the outer race side rotor, which is face to or adjacent to the free end of the stationary column, is the output end for the rotational torque" and "the power generator installed at the free end of said inner race side stationary column." These features of the invention is not mentioned in the cited references at all

The cited Reference 3 teaches a structure having a torque transmission shaft connected to the outer race side rotor and passing through inside the inner race side stationary column, but makes no mention of "the lower end portion of the shaft (torque transmission shaft) has a function of an output shaft terminal of the wind turbine."

Therefore, it is believed that the invention mentioned in all the claims is novel and involve an inventive step over all of the cited references.

[Translation]

RESPONSE

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1. INTERNATIONAL APPLICATION NUMBER:

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5. CONTENTS OF RESPONSE

(1) Background to Response

The second Written Opinion states that the invention set forth in Claims 1 and 3-4 has no novelty and Claims 1-4 has no inventive step in support of the cited references 1-3.

Hereinafter, Applicant would respectfully discuss on the Opinion noted above.

List of cited references

Reference 1: JP 59-87280 A

Reference 2: JP 61-28767 A

Reference 3: JP 2002-339854 A

(2) Contents and basis of amendments

Claim 1 is amended from "A cantilever type vertical axis wind turbine featured by

comprising an outer race side rotor having a plurality of blades for producing a rotational torque with wind, an inner race side stationary column having one free end externally unconstrained and the other stationary end, and a plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column." to "A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor having a plurality of blades for producing a rotational torque with wind, an inner race side stationary column of a hollow structure having one free end externally unconstrained and the other stationary end, a plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and a power generator installed at the free end of said inner race side stationary column, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, the rotational main shaft of said power generator is connected to the output end of said outer race side rotor directly or through a speed-up device or the like, and an electric power line connected to said power generator is arranged within said inner race side stationary column."

Claim 2 is amended from "A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor having a plurality of blades for producing a rotational torque with wind, an inner race side stationary column having one free end externally unconstrained and the other stationary end, and a plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, wherein said bearings include at least one bearing disposed on the upper side above said wind pressure center position, on which the wind acts on the outer race side rotor, and at least one bearing disposed on the lower side under the wind pressure center position." to "A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor having a plurality of blades for producing a rotational torque with wind, an inner race side stationary column of a hollow structure having one free end externally unconstrained and the other stationary end, a plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and a power generator installed at the free end of said inner race side stationary column, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, the rotational main shaft of said power generator is connected to the output end of said outer race side rotor directly or through a

speed-up device or the like, and an electric power line connected to said power generator is arranged within said inner race side stationary column, and wherein said bearings include at least one bearing disposed on the upper side above said wind pressure center position, on which the wind acts horizontally on the outer race side rotor, and at least one bearing disposed on the lower side under the wind pressure center position."

Claim 3 is canceled.

Claim 4 is amended so as to be dependent on Claim 1 or 2.

The amendments to Claims 1 and 2 as noted above are based on the former Claim 3 originally submitted and the disclosure in Paragraphs [0047], [0050] and [0060] on page 10 and FIG 2 of the specification on file.

The amendments to pages 4-5 of the specification on file are made to meet the amended claims.

(3) Characteristic features of the invention

The cantilever type vertical axis wind turbine claimed in Claims 1 and 2 of the invention is featured by comprising the hollow inner race side stationary column, the power generator disposed at the free end of the inner race side stationary column and has the rotational main shaft of the power generator connected to the output end of the outer race side rotor directly or through a speed-up device or the like, and the electric power line connected to the power generator is arranged within the inner race side stationary column.

Thus, the power generator can be disposed between the front end of the inner race side stationary column and the top end of the outer race side rotor, and existing power generators can be substituted therefor. Besides, the electric power line can be arranged within the inner race side stationary column.

(4) Comparison with Cited References

Reference 1 discloses "a vertical shaft wind turbine having a stationary support and an outer race side rotary shaft."

Reference 2 discloses "an expanded blade type wind turbine having a fixed shaft and a rotary shaft."

However, there is a description that "it is secured on the ground and provided with a supporting column around which the rotary shaft is connected to the top end and lower portion of

the support column through bearings" in Reference 1 (page 2). There is a description that "it comprises a vertical stationary shaft standing on a pedestal and a rotary shaft fitted into the stationary shaft through bearings" in Reference 2 (right upper column on page 2). There is a description that "support column rotatably supporting a mechanical chamber" (paragraph [0014] of page 3), "on the inner wall of the mechanical chamber, there is disposed an internal gear, so that a power generator is driven by a speed-up mechanism including the internal gear and other gears meshing with the internal gear" in Reference 3. However, these cited References neither taught nor suggested the characteristic feature of the present invention such as "the structure comprising the hollow inner race side stationary column, the power generator mounted on the free end of the inner race side stationary column and having the rotational main shaft connected to the output end of the outer race side rotor directly or through a speed-up device or the like, and the electric power line connected to the power generator is arranged within the inner race side stationary column."

That is to say, the inventions described in References 1 and 2 have nothing to do with "the structure comprising the hollow inner race side stationary column, and the electric power line connected to the power generator is arranged within the inner race side stationary column." Also, the invention described in Reference 3 shows the structure in which the power generator is mounted on the top of the support column, but the power generator is complicated in structure. Besides, the invention of Reference 3 is totally different from the present invention in which the existing power generator is mounted on the free end of the inner race side stationary column and having the rotational main shaft connected to the output end of the outer race side rotor directly or through a speed-up device or the like, and the electric power line connected to the power generator is arranged within the inner race side stationary column. Thus, the invention of Reference 3 using the complicated power generator makes production of the wind turbine difficult and suffers from the disadvantage of higher production cost therefor. On the other hand, the present invention can use the existing power generator to enable easy assembly of the wind turbine. Furthermore, according to the present invention, the electric power line connected to the power generator can be arranged within the inner race side stationary column.

Thus, the cantilever type vertical axis wind turbine set forth in the amended Claims 1 and 4 of the present invention is different in structure and effect from that disclosed in Reference 3. As is evident from the above, the present invention differs from Reference 3.

The vertical axis wind turbine set forth in Claim 2 according to the present invention is different in structure and effect from those disclosed in References 1-3 and can in no way be

accomplished on the basis of the cited References 1-3 by a person skilled in the art.

Therefore, it is believed that the cantilever type vertical axis wind turbine set forth in Claim 1 of the present invention is novel and involves an inventive step over the cited Reference 3. The cantilever type vertical axis wind turbine set forth in Claim 2 of the present invention is also believed to be novel and involve an inventive step over the cited References 1-3.

Since the cantilever type vertical axis wind turbine set forth in Claim 4 of the present invention is dependent on Claims 1 and 2, it is also believed to be novel and involve an inventive step over the cited References 1-3.

6. CONCLUSION

For the reasons indicated above, Applicant respectfully requests a reexamination and wishes to get a decision to issue allowance of this application containing Claims 1, 2 and 4.